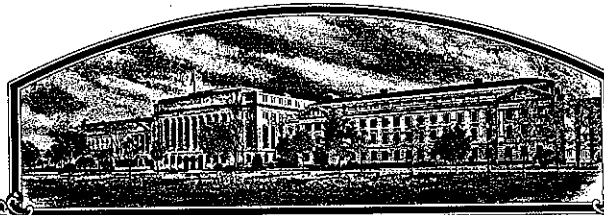


No.

8300075



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Ring Around Products, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (U.S.C. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'RA-580'



Attest:

Kenneth H. Evan
Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 30th day of April in the year of our Lord one thousand nine hundred and eighty-four.

John R. Block

Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION

FORM APPROVED: OMB NO. 0581-0005

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1. NAME OF APPLICANT(S) ROHM AND HAAS SEEDS INC. Ring Around Products, Inc.		2. TEMPORARY DESIGNATION RAX-15-2RA	3. VARIETY NAME RA-580
4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) 12000 Ford Road, Suite 300 Dallas, Texas 75234		5. PHONE (Include area code) 214-243-8166	FOR OFFICIAL USE ONLY PVPO NUMBER 8300075
6. GENUS AND SPECIES NAME Glycine Max	7. FAMILY NAME (Botanical) Leguminosae		FILING DATE 3-11-83 TIME 4:00 <input type="checkbox"/> A.M. <input checked="" type="checkbox"/> P.M.
8. KIND NAME Soybeans	9. DATE OF DETERMINATION 12-16-82		FEES RECEIVED AMOUNT FOR FILING \$ 1,000 DATE 3/11/83 AMOUNT FOR CERTIFICATE \$ 500.00 DATE 4/10/84
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Corporation			12. DATE OF INCORPORATION June 1969
11. IF INCORPORATED, GIVE STATE OF INCORPORATION Delaware			

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

~~A.M. Bazy~~
~~Ring Around Products, Inc.~~
~~12000 Ford Road, Suite 300~~
~~Dallas, Texas 75234~~

DR. JAMES E. STROIKE
727 NORRISTOWN ROAD, BUILDING 7D
SPRING HOUSE, PA 19477
Telephone 214-243-8166

RLS 6/25/85

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

a. ☒ Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)

c. ☒ Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)

b. ☒ Exhibit B, Novelty Statement

d. ☒ Exhibit D, Additional Description of the Variety

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act.)

☐ Yes (If "Yes," answer items 16 and 17 below)

☒ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?

☐ Yes

☒ No

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?

☐ Foundation

☐ Registered

☐ Certified

18. DID THE APPLICANT(S) FILE FOR PROTECTION OF THE VARIETY IN THE U.S. OR OTHER COUNTRIES?

☐ Yes (If "Yes," give names of countries and dates)

☒ No

19. HAVE RIGHTS BEEN GRANTED IN THE U.S. OR OTHER COUNTRIES?

☐ Yes (If "Yes," give names of countries and dates)

☒ No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT

A.M. Bazy

DATE

2-11-83

SIGNATURE OF APPLICANT

DATE

Exhibit A Origin and Breeding History of the Variety

1. RA-580 originated from the cross SX-194 which was a 1975 greenhouse F_1 between D69-8001 x SB168. F_2 's were grown in Plainview, Texas. F_3 's were grown at Fisher, Arkansas. A single F_3 plant identified as SX-194(e)1A was selected, harvested, and weighed in 1977. Yield was 61 grams.

In 1978 a single 20' row was grown of SX-194(e)1A in Millington, Tennessee, along with sister lines and Bedford check rows. This location was heavily infested with race 4 cyst nematodes.

Yield was:

Bedford	994 grams
SX-194(e)1A	2061 grams

Further data was collected in 1979, this line was assigned the experimental number RAX-15 and was tested widely (state and company trials) in 1980. Variation for plant type was noted and this experimental line was reselected in Robertsedale, Alabama. A single F_5 plant designated RAX-15-2RA was tested in 1981 in Fisher, Arkansas. In 1982 RAX-15-2RA was tested in company trials in Plainview, Texas; Fisher, Arkansas; and Midville, Georgia.

Block Trial 1982

	Texas	Georgia	Arkansas	X	Rank
Bedford	40.9	21.6	45.6	36.0	4
RAX-15-2RA	42.1	36.9	43.3	40.8	1

2. RAX-15 was screened for cyst nematodes by Dr. Robert Riggs, University of Arkansas, Fayetteville, Arkansas.

Ratings are as follows:

	RACE 3	RACE 4
RAX-15	284 cyst/plant	114 cyst/plant
Bedford	26 cyst/plant	59 cyst/plant
Lee 74	640 cyst/plant	674 cyst/plant

3. RAX-15 was screened for root knot nematodes by Dr. Clifton Hiebsch, University of Florida and other personnel.

Data Follows:

	Southern	Peanut	Javanese
RAX-15	4.00	4.00	2.50
Bedford	2.00	3.00	1.75
Centennial	0.00	3.75	2.75
Cobb			4.00

4. RA-580 as RAX-15-2RA was observed and judged as uniform and stable for two generations at Fisher, Arkansas.

The Ring Around Products, Inc. soybean committee meeting in December 1982 approved the release of RAX-15-2RA as RA-580.

'RA-580' HAS THE FOLLOWING VARIANTS:

1 BUFF HILUM PER 9,000 PLANTS

1 BLACK HILUM PER 9,000 PLANTS

PER APPLICANT'S LETTER OF JULY 12, 1983

R/S 7/15/83

Ring Around Products, Inc.

March 13, 1984

Robert J. Snyder, Examiner
Plant Variety Protection Office
Beltsville, MD 20705

EXHIBIT A APPENDUM
RJS 3/16/84

Dear Sir:

The readings of RA-580 for Southern, Peanut and Javanese nematodes were compiled as follows:

No. of hills planted 148

No. of hills with plants 110

Galling scores are from 0 - resistant to 5 very susceptible.

Check	Southern	=	Pickett 71
Varieties	Peanut	=	Centennial
	Javanese	=	Cobb

A score of 4.0 indicates severe galling. A score of 0.0 means no galling.

<u>Variety</u>	<u>Southern</u>	<u>Peanut</u>	<u>Javanese</u>
RA-580	4.00 (sus)	4.00 (S)	2.25 (MR)
Pickett 71	4.23 (sus)	---	---
Centennial	0.0 (res)	3.75 (S)	2.75 (MR)
Cobb	---	---	4.00 (S)

Sincerely,



Wm. H. Davis, Ph.D.
Senior Soybean Breeder

WD/pc

cc: Wilbur Johnson

Exhibit B Novelty Statement

RA-580 most nearly resembles Hood 75. It is unique in the following traits:

1. Hood 75 is susceptible to race 4 cyst nematodes. RA-580 is resistant to race 4 cyst nematodes.
2. Hood 75 has buff hilum; RA-580 has imperfect black hilum.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (*Glycine max* L.)

NAME OF APPLICANT(S) Ring Around Products, Inc.	TEMPORARY DESIGNATION RAX-15-2RA	VARIETY NAME RA-580
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) 12000 Ford Road, Suite 300 Dallas, Texas 75234		FOR OFFICIAL USE ONLY PVPO NUMBER 8300075

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g.,).

1. SEED SHAPE:



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)
3 = Elongate (L/T ratio > 1.2 ; T/W = < 1.2)

2 = Spherical Flattened (L/W ratio > 1.2 ; L/T ratio = < 1.2)
4 = Elongate Flattened (L/T ratio > 1.2 ; T/W > 1.2)

2. SEED COAT COLOR: (Mature Seed)

1 = Yellow

2 = Green

3 = Brown

4 = Black

5 = Other (Specify) _____

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

1 = Dull ('Corsoy 79'; 'Braxton')

2 = Shiny ('Nebsoy'; 'Gasoy 17')

4. SEED SIZE: (Mature Seed)

Grams per 100 seeds

5. HILUM COLOR: (Mature Seed)

1 = Buff

2 = Yellow

3 = Brown

4 = Gray

5 = Imperfect Black

6 = Black

7 = Other (Specify) _____

6. COTYLEDON COLOR: (Mature Seed)

1 = Yellow

2 = Green

7. SEED PROTEIN PEROXIDASE ACTIVITY:

1 = Low

2 = High

8. SEED PROTEIN ELECTROPHORETIC BAND:

1 = Type A (SP^{1a})2 = Type B (SP^{1b})

9. HYPOCOTYL COLOR:

1 = Green only ('Evans'; 'Davis')

2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')

3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')

4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

10. LEAFLET SHAPE:

1 = Lanceolate

2 = Oval

3 = Ovate

4 = Other (Specify) _____

11. LEAFLET SIZE:

☐ 31 = Small ('Amsoy 71'; 'A5312')
3 = Large ('Crawford'; 'Tracy')

2 = Medium ('Corsoy 79'; 'Gasoy 17')

12. LEAF COLOR:

☐ 21 = Light Green ('Weber'; 'York')
3 = Dark Green ('Gnome'; 'Tracy')

2 = Medium Green ('Corsoy 79'; 'Braxton')

13. FLOWER COLOR:

☐ 2

1 = White

2 = Purple

3 = White with purple throat

14. POD COLOR:

☐ 1

1 = Tan

2 = Brown

3 = Black

15. PLANT PUBESCENCE COLOR:

☐ 1

1 = Gray

2 = Brown (Tawny)

16. PLANT TYPES:

☐ 31 = Slender ('Essex'; 'Amsoy 71')
3 = Bushy ('Gnome'; 'Govan')

2 = Intermediate ('Amcor'; 'Braxton')

17. PLANT HABIT:

☐ 11 = Determinate ('Gnome'; 'Braxton')
3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

2 = Semi-Determinate ('Will')

18. MATURITY GROUP:

☐ 8

1 = 000

2 = 00

3 = 0

4 = I

5 = II

6 = III

7 = IV

8 = V

9 = VI

10 = VII

11 = VIII

12 = IX

13 = X

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

BACTERIAL DISEASES:

☐ 2Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)☐ 2Bacterial Blight (*Pseudomonas glycinea*)☐ 2Wildfire (*Pseudomonas tabaci*)

FUNGAL DISEASES:

☐ 0Brown Spot (*Septoria glycines*)Frogeye Leaf Spot (*Cercospora soja*)☐ 2

Race 1

☐ 0

Race 2

☐ 0

Race 3

☐ 0

Race 4

☐ 0

Race 5

☐ 0

Other (Specify)

☐ 2Target Spot (*Corynespora cassicola*)☐ 2Downy Mildew (*Peronospora trifoliorum* var. *manshurica*)☐ 2Powdery Mildew (*Microsphaera diffusa*)☐ 0Brown Stem Rot (*Cephalosporium gregatum*)☐ 0Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

FUNGAL DISEASES: (Continued)

<input type="text" value="0"/>	Pod and Stem Blight (<i>Diaporthe phaseolorum</i> var; <i>sojae</i>)												
<input type="text" value="2"/>	Purple Seed Stain (<i>Cercospora kikuchii</i>)												
<input type="text" value="0"/>	Rhizoctonia Root Rot (<i>Rhizoctonia solani</i>)												
Phytophthora Rot (<i>Phytophthora megasperma</i> var. <i>sojae</i>)													
<input type="text" value="0"/>	Race 1	<input type="text" value="0"/>	Race 2	<input type="text" value="0"/>	Race 3	<input type="text" value="0"/>	Race 4	<input type="text" value="0"/>	Race 5	<input type="text" value="0"/>	Race 6	<input type="text" value="0"/>	Race 7
<input type="text" value="0"/>	Race 8	<input type="text" value="0"/>	Race 9	<input type="text" value="0"/>	Other (Specify) _____								

VIRAL DISEASES:

<input type="text" value="0"/>	Bud Blight (Tobacco Ringspot Virus)
<input type="text" value="0"/>	Yellow Mosaic (Bean Yellow Mosaic Virus)
<input type="text" value="0"/>	Cowpea Mosaic (Cowpea Chlorotic Virus)
<input type="text" value="0"/>	Pod Mottle (Bean Pod Mottle Virus)
<input type="text" value="0"/>	Seed Mottle (Soybean Mosaic Virus)

NEMATODE DISEASES:

Soybean Cyst Nematode (<i>Heterodera glycines</i>)									
<input type="text" value="0"/>	Race 1	<input type="text" value="0"/>	Race 2	<input type="text" value=""/>	Race 3	<input type="text" value="2"/>	Race 4	<input type="text" value="0"/>	Other (Specify) _____
<input type="text" value="0"/>	Lance Nematode (<i>Hoplolaimus Colomus</i>)								
<input type="text" value="1"/>	Southern Root Knot Nematode (<i>Meloidogyne incognita</i>)								
<input type="text" value="0"/>	Northern Root Knot Nematode (<i>Meloidogyne Hapla</i>)								
<input type="text" value="1"/>	Peanut Root Knot Nematode (<i>Meloidogyne arenaria</i>)								
<input type="text" value="0"/>	Reniform Nematode (<i>Rotylenchulus reniformis</i>)								
<input type="text" value="0"/>	OTHER DISEASE NOT ON FORM (Specify): _____								

20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

<input type="text" value="2"/>	Iron Chlorosis on Calcareous Soil
<input type="text" value="0"/>	Other (Specify) _____

21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

<input type="text" value="0"/>	Mexican Bean Beetle (<i>Epilachna varivestis</i>)
<input type="text" value="0"/>	Potato Leaf Hopper (<i>Empoasca fabae</i>)
<input type="text" value="0"/>	Other (Specify) _____

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	Semmes	Seed Coat Luster	Hood 75
Leaf Shape	Semmes	Seed Size	Hood 75
Leaf Color	Hood 75	Seed Shape	Semmes
Leaf Size	Semmes	Seedling Pigmentation	Hood 75

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEEDS	NO. SEEDS/ POD
				CM Width	CM Length	% Protein	% Oil		
Submitted RA-580	130	1.5	39	-	-	-	-	15	2.3
Bedford Name of Similar Variety	130	1.8	40	-	-	-	-	13	2.3

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBT1-A₂ in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.

Exhibit D Additional Description of the Variety

RA-580 is a medium tall, bush type determinate variety. It features vigorous early vegetative growth. Leaves are large and somewhat droopy. Flowers are purple colored and bloom in dense clusters on large racemes. Stems are generally thick and strong. Lodging resistance is very good.

Seed quality of RA-580 is very good, seed coat is tough and durable. RA-580 features very good non-shatter properties with a shatter score of 1.0.